

ABSTRACT

A probe for application to a selected area of a subject's skin covering a body part, which selected area serves as a measurement site for measuring changes in the pulsatile arterial blood volume thereat, includes: a base for application to the selected area of the subject's skin at the measurement site; a pressure applicator for applying a static pressure to the subject's skin at the measurement site; and a sensor for sensing changes in the pulsatile arterial blood volume at the measurement site. The pressure applicator is designed to apply to the measurement site a static pressure of a magnitude to partially unload the wall tension of, but not to occlude, the arteries. The pressure applicator is configured to substantially prevent venous distention and blood pooling at the measurement site by permitting free venous drainage through tissues surrounding the measurement site. This is done by configuring the pressure applicator to apply the static pressure to a relatively restricted area of the subject's skin, which area occupies a relatively small fraction of the surface perimeter of the respective body part at the measurement site, to thereby permit free venous drainage from the measurement site via a wide region of unrestricted passageways surrounding the measurement site.